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FIVE-YEAR REVIEW REPORT

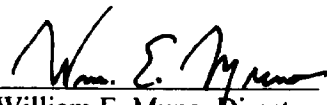
**Second Five-Year Review Report
For
Wheeler Pit Site
La Prairie Township, Wisconsin**

September 2002

**PREPARED BY:
United States Environmental Protection Agency
Region 5
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Approved by:

Date


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9/18/02

Executive Summary

The remedy for the Wheeler Pit site in La Prairie Township, Wisconsin included a multilayer RCRA Subtitle D cap, institutional controls and monitored natural attenuation of contaminated groundwater. The site achieved construction completion with the signing of the Preliminary Close Out Report on December 29, 1992. The trigger date for this five-year review was the first five-year review completed on April 8, 1997.

The assessment of the five- year review found that the remedy was constructed in accordance with the requirements of the Record of Decision (ROD). The remedy is functioning as designed. The immediate threats have been addressed and the remedy has achieved groundwater cleanup goals through natural attenuation with the exception of manganese in one monitoring well. The five-year review has concluded that manganese can be eliminated as a site contaminant of concern and therefore the site groundwater cleanup levels are considered to be met. This will be documented in an Explanation of Significant Differences (ESD). After issuance of the ESD, the site will be deleted from the Superfund National Priorities List.

**U.S. Environmental Protection Agency
Region 5
Five Year Review
Wheeler Pit Site
La Prairie Township, Wisconsin**

I. Introduction

EPA Region 5 has conducted a five-year review of the remedial actions implemented at the Wheeler Pit Superfund site in La Prairie Township, Wisconsin. This review was conducted from February through September 2002. This report documents the results of the review. The purpose of five-year reviews is to determine whether the remedy at a site is protective of human health and the environment. The methods, findings, and conclusions of review are documented in five-year review reports. In addition, five-year review reports identify deficiencies found during the review, if any, and identify recommendations to address them.

This review is required by statute. EPA must implement five-year reviews consistent with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). CERCLA 121(c), as amended, states:

If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented.

The NCP part 300.430(f)(4)(ii) of the Code of Federal Regulations (CFR) states:

If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.

This is the second five-year review for this site. The triggering action for this review is the first five-year review which occurred on April 8, 1997. Due to the fact that hazardous substances, pollutants, or contaminants remain at the site above levels that allow for unlimited use and unrestricted exposure, this five-year review is required.

II. Site Chronology

Table 1 lists the chronology of events for the Wheeler Pit site.

Table 1: Chronology of Site Events

Date	Event
9/84	NPL Listing
12/87	Administrative Order to Conduct Remedial Investigation/Feasibility Study (RI/FS)
7/90	RI/FS Complete
9/90	ROD Signature
5/91	Unilateral Administrative Order for Remedial Design and Remedial Action
5/92	Remedial Design Complete
6/92	Remedial Action Start
10/92	Remedial Action Complete
12/92	Preliminary Close-Out Report
4/97	First Five year Review Report
6/02	Site Inspection for Five-Year Review

III. Background

A. Physical Characteristics

The Site is located in rural La Prairie Township approximately 1 ½ miles east of the City of Janesville, Wisconsin, directly northwest of the intersection of County Highway O (Old Delevan Road) and County Highway J. (See Figures 1 and 2). The Site is within a physical depression approximately 50 feet deep and spanning an area of approximately 35 acres, which previously operated as a sand and gravel pit by the Southeast Railway Company and the Chicago, Milwaukee, St. Paul, and Pacific Railroad Company (CMC). In 1956, General Motors Corporation (GM) leased a portion of the pit area from the railroad for waste disposal. This portion of the pit area is the Wheeler Pit Superfund Site and is a 3.82 acre parcel in the southeast portion of Wheeler Pit which was used as a disposal area for industrial wastes for approximately

18 years.

B. Land and Resource Use

The area surrounding the site is mainly used for agriculture and sand and gravel mining. There is a small asphalt plant on the property which is north of and adjacent to the property on which the site is located. Along the eastern site boundary on County Highway J, the Rock County Highway Department maintains a salt storage facility. West of the site, in the western portion of Wheeler Pit, a fertilizer company leased a parcel of land in 1962. The buildings and equipment of the fertilizer plant were demolished and removed in 1989.

The Rock River is located approximately 2 miles west of the site and is used for recreational purposes. Groundwater beneath the site in the upper aquifer flows to the southwest. The upper aquifer is composed of outwash sand and gravel deposits, and is estimated to be 200 feet thick beneath the site. The aquifer is a major source of drinking water in the Janesville area. The aquifer beneath the upper outwash sand and gravel aquifer is composed of sandstone and is most likely hydraulically connected to the upper aquifer. The nearest municipal water supply well is the City of Janesville Municipal Well No. 8, which is located approximately 6,000 feet northwest of the site. Private wells located near the site are 900 feet south, 1000 feet southwest, and just across County Highway J to the east of the site. These wells are screened in the upper aquifer. The site does not lie in a floodplain or wetlands.

C. History of Contamination

From 1956 to 1960, GM disposed of general refuse at the site. From 1960 through 1974, GM disposed of paint spray booth sludges, residue from the part hanger stripping system, clarifier sludges and powerhouse coal ashes from its automobile assembly plant in Janesville. As reported to U.S. EPA by GM, an estimated 22.3 million gallons of organic and inorganic sludges were disposed of at the site.

At the site, waste was disposed of by depositing it within a diked area and allowing it to spread freely. The material was quite dense, so compaction equipment was not used. The waste was deposited in layers, alternating between sludge and layers of coal ash. At the request of La Prairie Township, disposal at the site was discontinued in 1974. The disposal area was covered and closed during the fall of 1974 and summer of 1975 in general accordance with guidelines provided by the Wisconsin Department of Natural Resources (WDNR). The WDNR required that GM implement a groundwater monitoring program, generate a site topographic map, stabilize surface water runoff and grade, cover and re-vegetate the site.

D. Basis for taking Action

In response to concerns over potential groundwater quality impacts related to waste disposal at the site, WDNR and GM sampled on-site monitoring wells and certain private water supply wells

in April 1981. Elevated levels of trichloroethylene, chromium, zinc and barium were found in both WDNR and GM samples from the on-site monitoring wells. Based on the results of this sampling, the site was placed on the National Priorities List on September 21, 1984.

In December 1987, the two known potentially responsible parties (PRPs) at the site GM and CMC Corporation signed a consent order with the U.S. EPA and WDNR to perform the Remedial Investigation/ Feasibility Study (RI/FS) to study the contamination at the site and to evaluate remedial actions for cleanup at the site.

The RI found that the waste/fill area covers approximately 3.4 acres and ranges from 0-23 feet in thickness with the deepest part of the waste/fill area being approximately 10 feet above the ground water table. Sampling of the waste found the following:

- toluene, ethylbenzene, xylenes and xylenes at concentrations ranging from 3300 parts per billion (ppb) to 508,000 ppb. These compounds are volatile organic compounds (VOCs)
- phthalates ranging from 450 ppb to 630,000 ppb. Phthalates are semi-volatile compounds associated with plastics and plastic making processes.
- Polynuclear Aromatic Hydrocarbons (PAHs) ranging from 9520 ppb to 152,000 ppb. PAHs are semi-volatile compounds derived from coal and oil tars and the incomplete combustion of carbonaceous materials.
- Nine metals were detected at elevated concentrations including antimony, barium, copper, cadmium, chromium, lead, mercury, nickel and zinc.

Groundwater sampling found several chlorinated benzene compounds 1,4 dichlorobenzene, 1,3 dichlorobenzene and chlorobenzene in down gradient monitoring wells. The 1,4 dichlorobenzene concentration exceeded the proposed Wisconsin Preventive Action Limit (PAL) groundwater standard. The sampling found that the metals arsenic, chromium, iron and manganese exceeded PALs and in the case of iron and manganese, also exceed Wisconsin Enforcement Standards (ES).

A risk assessment was conducted and it was determined that there was a possible carcinogenic (cancer causing) risk from groundwater if a well was placed on the site and a noncarcinogenic risk to a construction worker from inhalation of VOCs while digging in the waste. It was also determined that there was a potential for erosion to continue to degrade the present soil cover and if that occurred, a trespasser at the site might encounter a risk similar to a construction worker.

IV. Remedial Actions

Remedy Selection

The ROD for the Wheeler Pit site was signed on September 28, 1990. The number of alternatives considered for groundwater was reduced in the Feasibility Study based on the levels of contaminants detected in the groundwater and the limited areal extent of contamination. The alternatives to address the ash/waste contamination were source control actions which relied on natural attenuation to remedy the groundwater. Remedial action objectives identified in the ROD for source control and groundwater contamination were:

Source Control Remedial Action Objectives

- ▶ Reduce the threat of direct contact with the ash/waste contamination.
- ▶ Reduce the amount of infiltration of water into the waste which could lead to further groundwater contamination.

Groundwater Contamination Remedial Action Objectives

- ▶ Achieve Wisconsin PALs where technically and economically feasible.

The major components of the source control remedy selected in the ROD include the following:

- 1.) A multi-layer RCRA Subtitle D cap consisting of the following layers from top to bottom: a 6- inch thick topsoil layer; a frost protective soil layer at least 18-inches thick; a drainage layer and a 2-foot clay layer.
- 2.) Consolidation under the cap of 400 cubic yards of waste and soil from the property north of the site.
- 3.) Institutional controls including deed restrictions and landfill development restrictions.

The groundwater remedy consisted of monitoring wells to assess the projected decrease in groundwater contamination. Monitoring wells were to be sampled for at least 30 years. Private wells located down-gradient of the site were also to be monitored to assess potential impacts to human health.

Remedy Implementation

U.S. EPA gave notice to proceed with the Remedial Action on May 21, 1992. A contract for

remedial construction activities was awarded April 30, 1992 and on-site construction began on June 8, 1992. Remedial construction included the following activities:

- ▶ Consolidation of approximately 36,400 cubic yards of material, including waste from property north of the site;
- ▶ Installation of a Wisconsin Administrative Code (WAC) No. 504 solid waste cap over the waste and consolidated material, which included 2 feet of compacted clay, 1 foot gravel drainage layer with geotextile filter fabric, 1 and ½ foot of soil for frost protection and to serve as a rooting zone and 6-inches of topsoil;
- ▶ Hydroseeding of the cap and installation of a fence around the site;
- ▶ Access road construction;
- ▶ Retention basin construction;
- ▶ Perimeter drainage swale construction;
- ▶ Site clearing, stump removal and existing access road abandonment;
- ▶ Installation and also abandonment of groundwater monitoring wells and implementation of a long-term groundwater monitoring program.

A pre-final inspection was performed on October 27, 1992 and construction was found to be substantially complete. A Construction Completion Report was submitted by the PRPs in December 1992 and U.S. EPA subsequently issued a Preliminary Close Out Report on December 29, 1992.

System Operation/Operation and Maintenance

General Motors is conducting operation and maintenance activities for the landfill and the long-term groundwater monitoring in accordance with the Unilateral Administrative Order. The primary activities associated with the O&M include the following:

- ▶ Routine mowing of the landfill cover;
- ▶ Visual inspection of the landfill cover for damage due to erosion, washouts, settling, growth of trees or large plants, growth of noxious weeds and burrowing animals;
- ▶ Inspection of monitoring wells for well casing damage, surface seal damage, missing or broken locks, vandalism, well screen damage and sediment;

- ▶ Inspection of the landfill storm water control system which consists of perimeter swales, roadside swales, culverts, and the storm water retention pond. The inspection includes inspecting for damage from erosion, sediment accumulation in swales or culverts, settlement, riprap integrity, distressed vegetation, growth of trees or large plants, growth of noxious weeds and burrowing animals;
- ▶ Inspection of perimeter fence for damage from cuts, sagging, bent or damaged fence gates and posts, excessive gaps between ground and fence bottom, missing locks and signs, cut barbed wire and tree branches encroaching on the fence and;
- ▶ Inspection of the site access road for damage due to erosion, settlement or grading activities.

The inspection activities described above are documented in an annual report and operation and maintenance and repairs are conducted, as necessary.

Operation and maintenance (O&M) costs for inspections, repairs and groundwater monitoring were compiled from the period of July 1997 to July 2002. The O & M costs for inspections and repairs was \$27,100 and the O&M costs for groundwater monitoring and associated reports was \$73,900. The annual O&M costs of approximately \$20,000 are considerably less than the originally estimated annual costs of \$137,000 per year.

V. Progress Since the Last Five Year Review

The previous five- year review completed on April 8, 1997 identified two issues for followup.

Issue

1.) Issuance of institutional controls prohibiting future site development and installation of drinking water wells.

Follow-up

Deed restrictions were filed for the property adjacent to the site in 1995 and for the site in 1997 prohibiting future site development and groundwater usage. See Section VII- Technical Assessment of this review for further discussion on the deed restrictions.

Issue

2.) Evaluate the progress in achieving groundwater cleanup levels, particularly the manganese concentrations exceeding WDNR PALs in Monitoring Wells MW 3AR and MW 7A

Follow-up

Groundwater sampling performed since the previous five-year review has not found any exceedences of WDNR PALs, the site cleanup goals, for the site contaminants of concern with the exception of manganese found in Monitoring Well 7A. With regard to this manganese in Monitoring Well 7A, this five- year review has concluded that manganese can be eliminated as a site contaminant of concern. See Section VIII- Issues of this review for further discussion on this issue.

VI. Five Year Review Process

Administrative Components

The Wheeler Pit site five year review was prepared by Darryl Owens, Remedial Project Manager for the site. Michael Schmoller, Site Project Manager with the Wisconsin Department of Natural Resources also assisted in the review. The five year review consisted of a review of relevant documents and a site visit.

Community Involvement

A notice was sent to the Janesville Gazette that a five year review was to be conducted. The completed report will be available in the information repository. Notice of its completion will be placed in the Janesville Gazette newspaper and local contacts will be notified by letter.

Document Review

The five year review consisted of a review of relevant documents including O&M records and groundwater monitoring data (See Attachment 1).

The following standards were identified as applicable or relevant and appropriate requirements (ARARs) in the 1990 ROD for the site and were reviewed for changes that could affect protectiveness:

Chemical-specific ARARs

Chemical-specific ARARs regulate the release to the environment of specific substances having certain chemical characteristics. The chemical-specific ARARs for the site were:

- Safe Drinking Water Act Maximum Contaminant Levels (MCLs);
- State of Wisconsin Statute Ch. NR 140, WAC and Ch. 160-Wisconsin Preventive Action Limits (PALs) were established as remediation goals for groundwater.

Location-specific ARARs

Location specific ARARs are those requirements that relate to the geographic position of a site. The location -specific ARARs for the site were:

- State of Wisconsin Statute Ch. NR 112, WAC- Requires that no drinking water wells be located within 1200 feet of a landfill, unless a variance is obtained from WDNR.

- State of Wisconsin Statute Ch. NR 506 and NR 540, WAC- Regulates the development of landfills.

Action-specific ARARs

Action-specific ARARs are requirements that define acceptable treatment and disposal procedures for hazardous substances. The action-specific ARARs for the site were:

- State of Wisconsin Statute Ch. NR 504.07, WAC- Regulates design of solid waste landfill cap.

With regard to chemical-specific ARARs, the standards for four of the five chemicals of concern in the groundwater which exceeded PALs at the time of the 1990 ROD (1,4 dichlorobenzene , arsenic, iron and manganese) have not changed. The PALs remain at 15 micrograms per liter (ug/l) for 1,4 dichlorobenzene, 5 ug/l for arsenic, 150 ug/l for iron, and 25 ug/l for manganese. The PAL for chromium has become less stringent at 10 ug/l versus 5 ug/l at the time of the ROD signing.

With regard to the State of Wisconsin location specific ARAR prohibiting drinking water wells within 1200 feet of a landfill, there has not been any construction of private wells within this distance. No review is required of the action-specific ARAR for landfill cap design since the landfill cap has already been constructed.

Data Review

Groundwater monitoring has been performed to determine if the groundwater contamination is attenuating, or decreasing, through the use of natural processes. The groundwater remedial action objective was to achieve State of Wisconsin Preventive Action Limits (PALs) for the contaminants of concern identified in the ROD. Those groundwater contaminants were 1,4-dichlorobenzene, arsenic, chromium, iron and manganese. Baseline groundwater sampling began in January 1992 and quarterly sampling began in October 1992. The groundwater monitoring network consists of 16 monitoring wells and 2 private wells. The 16 well monitoring network consists of off-site upgradient monitoring wells, on-site downgradient monitoring wells and off-site downgradient monitoring wells.

As required by the Unilateral Administrative Order, a Five Year Groundwater Assessment

Report was submitted by GM in 1998 to evaluate the progress in achieving the groundwater cleanup goals. This report concluded that:

- ▶ 1-4 Dichlorobenzene was no longer of concern because concentrations were below PALs;
- ▶ Arsenic had not been detected in any well since the baseline groundwater sampling;
- ▶ Chromium has been detected in one monitoring well at concentrations slightly above and also below the PAL concentration of 5 ug/l;
- ▶ Iron concentrations have not exceeded the PAL in any downgradient monitoring well since the baseline groundwater sampling;
- ▶ The private wells have not been impacted by the site contaminants;
- ▶ Manganese concentrations exceed the PAL concentration of 25 ug/l in the shallow downgradient well (MW 7A). The report indicated that the manganese concentration was due to natural attenuation processes (reducing conditions) occurring at this location.

Given that the Five Year Groundwater Assessment Report demonstrated that only one contaminant of concern (manganese) in one downgradient well exceeded the WDNR PALs, U.S. EPA approved a reduced groundwater monitoring program for the future annual site groundwater sampling. The reduced monitoring program consists of sampling for manganese in four monitoring wells, which are downgradient monitoring wells MW7A and MW 3A, upgradient monitoring well MW6A and sidegradient monitoring well MW 5A (See Figure 3).

In the annual groundwater sampling performed from 1998 through 2001, only monitoring well MW7A has continued to exceed the Wisconsin PAL. See Table 2 for manganese concentrations in the monitoring wells. Concentrations have ranged between 100-200 ug/l, although the most recent sampling results in 2001 and 2002 were 735 ug/l and 712 ug/l, respectively. The Wisconsin PAL and Enforcement Standard (EF) for manganese is also included in the table.

Table 2- Manganese Concentrations in Monitoring Wells (1998-2001)

Well No.	Wisc. PAL (ppb)	Wisc. EF (ppb)	Manganese Concentrations (ppb)			
			1998	1999	2000	2001
MW3AR	25	50	9.3	U (3.0)**	U (2.0)**	NA*
MW5A	25	50	U (1.3)**	U (3.0)**	21.2	16.8

MW6A	25	50	U (1.3)**	ND (1.7)***	U (.51)**	U (.83)**
MW7A	25	50	193	121	225	735

* NA-Not Analyzed (well casing damaged)

** U- Qualified as not detected at the reporting limits described in the parentheses

*** ND- Not detected at the detection limits stated in parentheses

As required by the UAO, a complete round of groundwater sampling was performed in June 2002 in conjunction with this five year review. None of the site contaminants of concern were found above the WDNR PALs in any of the monitoring wells, with the exception of manganese in MW 7A at a concentration of 712 ug/l. The June 2002 sampling of the two residential wells found low concentrations of manganese, well below the WDNR PAL. Therefore, it does not appear that the manganese found in monitoring well MW 7A is migrating off-site to these wells.

Manganese is federally regulated for aesthetic purposes under non-enforceable secondary drinking water standards and is regulated by WDNR under public welfare groundwater quality standards rather than public health standards. The Wisconsin Department of Health (WDH) has also indicated that a portion of the manganese detected in the site monitoring wells may be naturally occurring. The WDH reports that one half of shallow groundwater in the State exceeds the PAL (25 ug/l) for manganese and one third exceeds the EF (50 ug/l) for manganese.

In November 2000, General Motors requested an exemption from the State of Wisconsin NR 140 Wisconsin Administrative Code (WAC) for continued remedial action at the site for manganese groundwater contamination found in monitoring well MW 7A. The exemption request was based on background concentrations of manganese exceeding the PAL. According to the WAC, if background concentrations exceed the PAL, an exemption from undertaking further action can be granted if 1.) the facility is designed to achieve the lowest possible concentrations which is technically and economically feasible and 2.) the conditions do not present a threat to public health or welfare.

General Motors exemption request indicated that manganese had been detected in the background well and also an upgradient site well in the past. The request stated that the solid waste cap is adequately preventing infiltration from further contaminating the groundwater and thus is designed to technically and economically achieve the lowest possible contaminant concentrations. In addressing the requirement that the manganese does not pose a threat to public health or welfare, the request indicated that the manganese contamination is in a very localized area adjacent to the cap and that manganese in downgradient off-site wells and private wells do not exceed PALs. It was also indicated that manganese is a State of Wisconsin welfare constituent which may impart a color tint to water rather than posing a public health threat.

In January 2001, the WDNR granted the exemption which stated that the site had met the exemption requirements of NR 140.28(1) Wis. Adm. Code and that no further actions are required at this time to address the manganese groundwater contamination. It was also indicated that the exemption approval only applies to NR 140 Wis. Adm. Code and that continued remedial actions may be required by U.S. EPA under CERCLA.

Site Inspection

An inspection at the site was conducted on June 5, 2002 as part of this five-year review. The inspection was conducted by Darryl Owens, the Remedial Project Manager and also Mike Keppel, Project Engineer for Conestoga Rovers & Associates who was representing General Motors. The purpose of the inspection was to assess the protectiveness of the remedy, including the integrity of the cap, the presence of fencing to restrict access and the condition of site monitoring wells and the site drainage system. Inspection of the cap did not find any settlement, cracks, or erosion. There were no areas of ponding, even though there had been a two inch rain the prior day. The cap grass had been mowed several weeks prior to the inspection and the grass appeared to be well established.

Inspection of the site drainage system did not reveal any major deficiencies. Drainage channels were clear although there was vegetative growth in some riprap rock areas. The outlet culverts for the drainage channels which drain into the storm water detention pond had some siltation which may need to be removed at some point in the future. The site fencing was in excellent condition and appeared to be effective in preventing trespassing. Signs were posted at regular intervals on the fence, indicating that the cap area was a restricted area and trespassing was prohibited. The monitoring well system was in satisfactory condition. The bent casing for monitoring well MW 3AR has been replaced. It is not clear how the casing became bent but the well is adjacent to County Highway O and may have been struck by a car or highway maintenance equipment. The full round of groundwater sampling for the five year review was being conducted at the site at the time of the site inspection.

The conclusion of the inspection was that the site remedy was intact and remains protective. No deficiencies were observed which would require immediate corrective action.

VII. Technical Assessment

The following questions address the protection of human health and the environment by the remedy at the Wheeler Pit site.

Question A: Is the remedy functioning as intended by the decision documents?

The review of documents, ARARs and the results of the site inspection indicates that the remedy is functioning as intended by the ROD. The capping of the sludge/ash wastes has achieved the remedial action objectives to minimize the migration of contaminants to groundwater and

prevent direct contact with, or ingestion of contaminants in the pit.

The effective implementation of institutional controls has prevented exposure to, or ingestion of, contaminated groundwater. Deed restrictions have been recorded for the site property and adjacent property that restrict future use of the site and groundwater in the vicinity of the site. The deed restrictions prohibit construction of buildings, wells, pipes, roads, ditches or any other structures that would affect the construction, physical integrity or operation and maintenance of the remedy. Use of groundwater on the affected properties is also prohibited. The deed restrictions indicate that a party which is a title holder of, or controls real property subject to the deed restriction covenant, may ask U.S. EPA for a determination that one or more of the deed restrictions is no longer required, provided it does not interfere with the remedy as described above. U.S. EPA, in consultation with WDNR, shall determine whether a restriction can be extinguished. State of Wisconsin regulations also restrict future installation of drinking water wells within 1200 feet of the landfill waste management boundary.

The natural attenuation ground water remedy has been evaluated through a reduced annual groundwater monitoring program approved by U.S. EPA. The groundwater monitoring has shown that contamination has attenuated and that the only contaminant of concern remaining above Wisconsin PALs is manganese, which is only being found in one monitoring well, MW 7A. A complete round of groundwater sampling of all monitoring wells and residential wells was conducted in 2002 for this five year review, which confirmed that contamination remains below WDNR PALs with the exception of manganese in MW 7A.

Operation and maintenance of the cap and the drainage system has been effective. Recent maintenance activities have included fence repair due to a fallen tree, removal of woody vegetation along the fence lines and removal of woody vegetation from riprap areas in the storm water control system. A bent monitoring well casing was also repaired. O&M annual costs are less than original estimates and there are no indications of any difficulties with the remedy. Since there is not an active pump and treat system, the limited annual groundwater sampling activities do not lend themselves to optimization.

At this time, there are no indications of remedy failure. Operation and maintenance of the landfill cap have been effective and minor repairs that were required have been performed on a timely basis. Institutional controls have been implemented which restrict future uses of the site and prohibit any off-site drinking well construction within 1200 feet of the pit. The complete round of groundwater sampling conducted in 2002 confirms that groundwater is naturally attenuating.

Question B: Are the exposure assumptions, toxicity data, cleanup levels and remedial action objectives (RAOs) used at the time of remedy selection still valid?

There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy.

Changes in Standards and To Be Considered

Since the remedial construction work has been completed, the ARARs for construction of the landfill cap over the ash/waste have been met. Neither federal MCLs nor State groundwater standards for site related contaminants have become more stringent since the time of the ROD. There have been no new standards or to be considered which would affect the protectiveness of the remedy.

Changes in Exposure Pathways, Toxicity and Other Contaminant Characteristics

There have been no changes that would result in additional exposure pathways. There have been no changes in the toxicity factors for the contaminants of concern that were used in the baseline risk assessment. Changes in risk assessment methodologies since the baseline risk assessment in the ROD do not call into question the protectiveness of the ROD.

Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

No additional information has come to light which would call into question the protectiveness of the remedy.

Technical Assessment Summary

According to the data reviewed and the site inspection, the remedy is functioning as intended by the ROD. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. All ARARS associated with the construction of the landfill cap over the waste/ash have been met. All groundwater ARARS associated with the groundwater contamination have been achieved with the exception of manganese in one down-gradient on-site monitoring well. There have been no changes in the toxicity factors for the contaminants of concern that were used in the baseline risk assessment, and there have been no changes in the standardized risk assessment methodology that could affect the protectiveness of the remedy. There is no other information that calls into question the protectiveness of the remedy.

VIII. Issues

The one issue at the site identified in this five-year review is the significance of manganese in monitoring well MW 7A. Manganese is the only site contaminant of concern which exceeds the State of Wisconsin PALs which are the cleanup levels for the site. Monitoring well 7A is the only monitoring well where the manganese concentration exceeds the WDNR PAL. U.S. EPA has determined as part of this five year review, that manganese should no longer be considered as a contaminant of concern for the site. Information used as the basis for this determination was discussed in the data review portion of Section VI of this report and is summarized below:

- ▶ There is not a primary MCL for manganese. Manganese is only federally regulated for aesthetic purposes under non-enforceable secondary drinking water standards. Similarly, the State of Wisconsin does not have a public health standard for manganese and regulates manganese for aesthetics as a public welfare groundwater quality standard..

- ▶ The Wisconsin Department of Health (WDH) has indicated that a portion of the manganese detected in the site monitoring wells may be naturally occurring. WDH reports that one half of shallow groundwater in the State exceeds the PAL (25 ug/l) and one third exceeds the EF (50 ug/l) for manganese. Consistent with WDH's observation, manganese has historically been found in the site background shallow monitoring well (MW 1A) at concentrations that exceed both the PAL and EF. The highest concentration found in background monitoring well MW1A was 320 ug/l which is well above the PAL and EF. It should be noted, however, that the June 2002 sampling event only detected 7.1 ug/l of manganese in MW 1A.

- ▶ The WDNR has granted an exemption to General Motors from the State of Wisconsin NR 140 Wisconsin Administrative Code (WAC) for continued remedial action at the site for manganese groundwater contamination. According to the WAC, if background groundwater concentrations exceed the PAL, an exemption can be granted if 1.) The facility is designed to achieve the lowest possible concentrations technically and economically feasible and 2.) The conditions do not present a threat to public health or welfare. As detailed in Section VI of this report, the General Motors exemption request addressed both of these conditions successfully and WDNR granted the exemption in January 2001.

- ▶ Groundwater sampling of the two residential wells conducted in June 2002 found low concentrations of manganese in the wells consistent with the historical results in these wells. Therefore, it does not appear that the manganese found in monitoring well MW 7A is migrating off-site to these wells.

IX. Recommendations and Follow-up Actions

The recommendation of this five-year review is that manganese should be deleted from the site contaminants of concern. An Explanation of Significant Differences (ESD) to the ROD decision document should be prepared to document this change. The ESD will also establish the extent and frequency of future groundwater monitoring to be performed at the site. After the ESD has been issued, documentation can be prepared to delete the site from the Superfund National Priorities List. A summary of these recommendations and follow-up actions are shown in Table 3 below:

Table 3 : Recommendations and Follow-up Actions

Five-Year Review Deficiencies	Recommendations Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Follow-up Action: Affects Protective ness (Y/N)
Manganese in MW 7A	Prepare an ESD to remove manganese as a site contaminant of concern and establish the extent and frequency of future ground water sampling	EPA	EPA/WDNR	March 2003	N
Manganese in MW 7A	Deletion of site from the NPL	EPA	EPA/WDNR	March 2004	N

X. Protectiveness Statements

The site remedy is protective of human health and the environment. The landfill cap has been completed and prevents direct human contact with wastes and ash in the soils. Groundwater cleanup levels have been achieved with the exception of manganese in one downgradient well. However, this five-year review recommends the deletion of manganese as a contaminant of concern, so all groundwater cleanup levels are considered to have been met. Institutional controls have also been implemented to restrict land and groundwater uses of the site.

XI. Next Review

The Wheeler Pit Site is a statutory site that requires ongoing five-year reviews. The next review will be conducted within five years of completion of this five-year review report. The completion date is the date of the signature shown on the signature cover attached to the front of this report.

Attachment 1
List of Documents Reviewed

Record of Decision for Wheeler Pit Site, September 28, 1990

Operation and Maintenance Program Three to Four Year Groundwater Assessment Report, June 1996

Operation and Maintenance Report Five Year Groundwater Assessment Report, February 1998

Operation and Maintenance Program 1998 Annual Report, October 1998

Operation and Maintenance Program 1999 Annual Report, December 1999

Operation and Maintenance Program 2000 Annual Report, January 2001

Operation and Maintenance Program 2001 Annual Report, February 2002

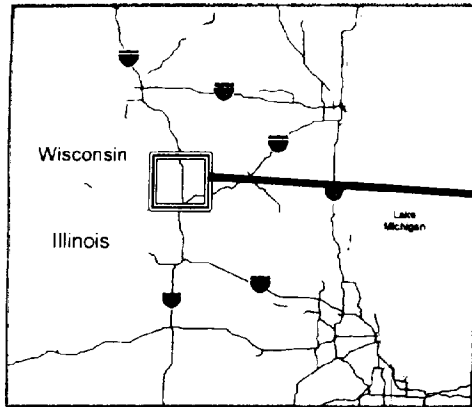
Groundwater Sampling Data for June 2002

Five-Year Review Report, April 8, 1997

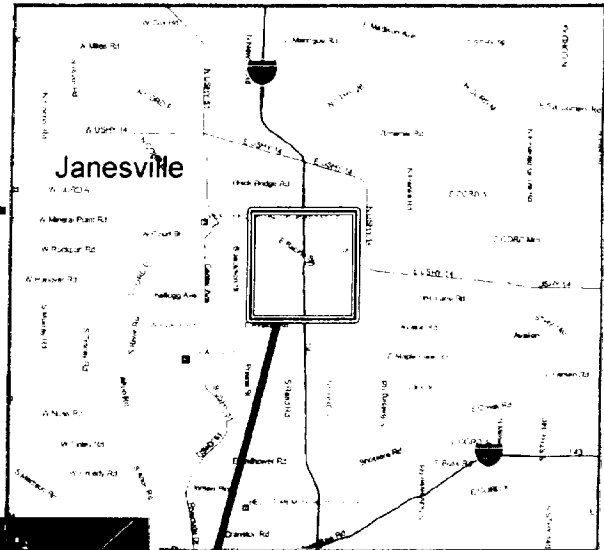
U. S. EPA Unilateral Administrative Order, May 13, 1991

Wheeler Pit Superfund Site Rock County, Wisconsin

1) State



2) City of Janesville



3) Wheeler Pit Superfund Site



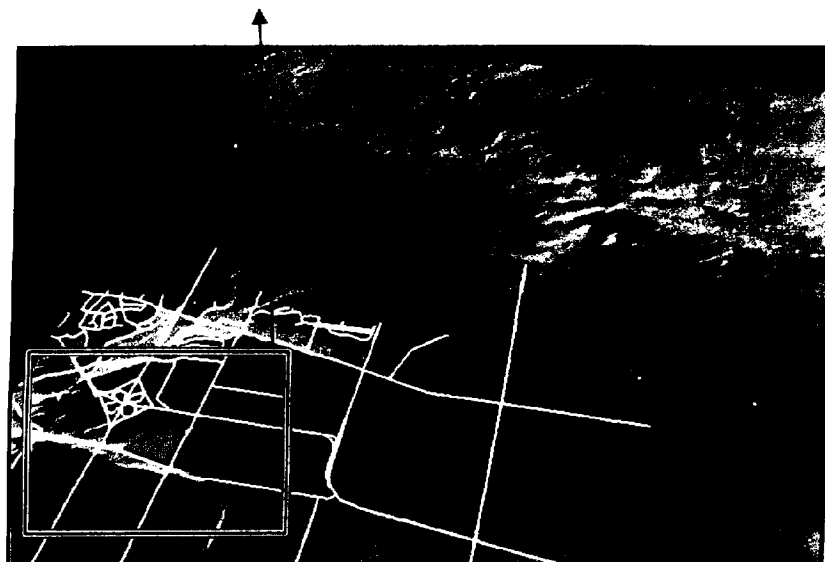
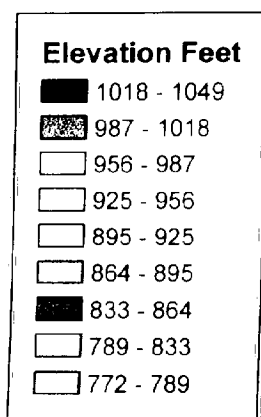
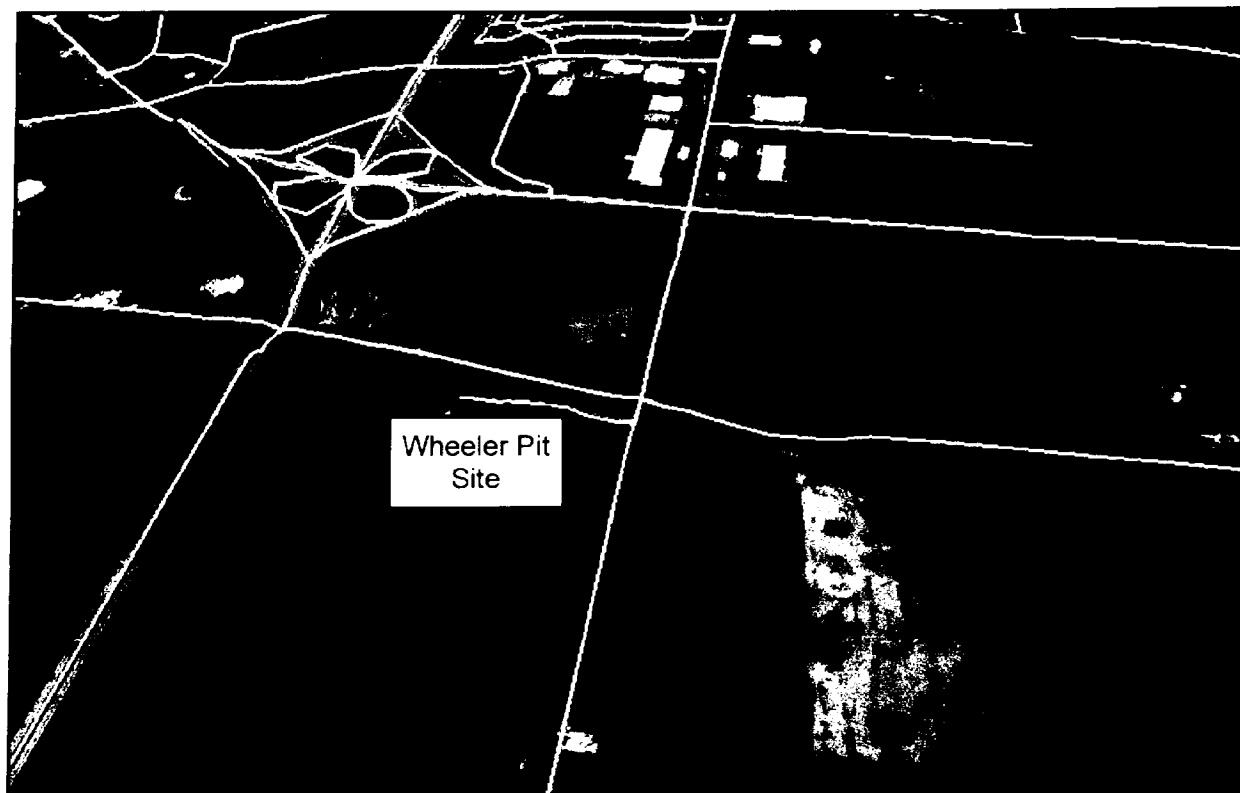
Figure 1

Plot created by Dave Wilson U.S. EPA Region 5 on 9/12/2002
B&W Image Date 4/28/1992

EPA

Region 5

Wheeler Pit Superfund Site 3D Surface Terrain Model



Plot created by David Wilson, U.S. EPA Region 5 on 9/11/2002
SAW Image Date 4/28/1992

Figure 2

